Atty. Dkt. No. 100110288-1

CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application.

6 ⇒ 5 ⇒ 1
17 ⇒ 14 ⇒ 13
18 ⇒ 16 ⇒ 17
19 ⇒ 16 ⇒ 17
98 ⇒ 17 ⇒ 13

1. (previously presented) A computer implemented method for generating an interconnect fabric design problem specification, the problem specification including requirements for a plurality of flows among a set of network nodes and the problem specification suitable for application of a design technique by which physical communication links and communication devices are arranged to meet the flow requirements, the method comprising selecting, from among the set of network nodes, a source node and a terminal node for a flow to be added to the requirements, determining a maximum capacity available at the selected source node and the selected terminal node, generating the flow having a capacity less than or equal to the lower of the maximum capacity of the source node and the terminal node and repeating said selecting, said determining and said generating thereby adding requirements for flows to the problem specification such that at least one of the source or terminal nodes is assigned more flows than there are ports available at the node.

2. (original) The method according to claim 1, wherein said determining a maximum capacity comprises determining capacity available at each port of the source node and selecting the highest available capacity for the source node ports and determining capacity available at each port of the terminal node and selecting the highest available capacity for the terminal node ports.

3. (original) The method according to claim 2, wherein said determining a capacity at a port of the source or terminal node depends on a specified degree of port saturation and unused port capacity.

4. (previously presented) The method according to claim 1, wherein said selecting, said determining and said generating is repeated until a stop condition is reached.

5. (original) The method according to claim 4, wherein the stop condition is reached when each node in the set has at least a specified number of flows.

6. (currently amended) The method according to claim 1[[5]], wherein said set of network nodes comprises a cluster of nodes and wherein the design problem includes a plurality of clusters.

7. (original) The method according to claim 6, wherein the design problem includes at least one flow between a pair of the clusters.

8. (original) The method according to claim 7, wherein the design problem further comprises at least one node not in the clusters having a flow to a node in the clusters.

9. (original) The method according to claim 1, further comprising generating an additional flow and determining whether to add the flow to the design problem according to a specified probability.

10. (original) The method according to claim 9, further comprising repeating said steps of generating an additional flow and determining whether to add the flow to the design problem a number of times determined from a difference between a current number of flows and a specified maximum number of flows.

11. (original) The method according to claim 1, wherein the flow is assigned to a single port at each of the source node and the terminal node.

12. (original) The method according to claim 1, wherein the flow is split among multiple ports at one or both of the source node and the terminal node.

13. (previously presented) A system for generating an interconnect fabric design problem specification for communication among a set of nodes, the system comprising:

a set of design information including user-specified parameters for the design problem specification; and

a fabric design problem generation tool that generates the design problem specification for the interconnect fabric by adding flows to a set of flow requirements among the set of nodes in response to the design information such that at least one of the nodes is assigned more flows than there are ports available at the node and wherein said fabric design problem generation tool selects, from among the set of network nodes, a source node and a terminal node for a flow to be added to the flow requirements, determines a maximum capacity available at the selected source node and the selected terminal node, and generates the flow having a capacity less than or equal to the lower of the maximum capacity of the source node and the terminal node.

14. (cancelled)

15. (previously presented) The system according to claim 13, wherein said fabric design problem generation tool determines the maximum capacity at the source node by determining capacity available at each port of the source node and selecting the highest available capacity for the source node ports and wherein said fabric design tool determines the maximum capacity available at the terminal node by determining capacity available at each port of the terminal node and selecting the highest available capacity for the terminal node ports.

16. (original) The system according to claim 15, wherein said fabric design problem generation tool determines a capacity at a port of the source or terminal node based on a specified degree of port saturation and unused port capacity.

17. (currently amended) The system according to claim 13[[14]], wherein said fabric design problem generation tool adds flows to the set of flow requirements until a stop condition is reached.

18. (currently amended) The system according to claim 17[[16]], wherein the stop condition is reached when each node in the set has at least a specified number of flows.

19. (currently amended) The system according to claim 17[[16]], wherein the stop condition is based on bandwidth levels of the flow requirements.

20. (original) The system according to claim 13, wherein said set of network nodes comprises a cluster of nodes and wherein the design problem includes a plurality of clusters.

21. (original) The system according to claim 20, wherein the design problem includes at least one flow between a pair of the clusters.

22. (original) The system according to claim 21, wherein the design problem further comprises at least one node not in the clusters having a flow to a node in the clusters.

23. (currently amended) The system according to claim 13[[17]], wherein the fabric design problem generation tool generates an additional flow and determines whether to add the flow to the design problem according to a specified probability.

24. (original) The system according to claim 23, wherein the fabric design problem generation tool repeatedly generates an additional flow and determines whether to add the flow to the design problem a number of times determined from a difference between a current number of flows and a specified maximum number of flows.

25. (previously presented) The method according to claim 1 wherein the capacity for a generated flow is randomly selected to be a value less than or equal to the lower of the maximum capacity of the source node and the terminal node.

26. (previously presented) The method according to claim 1 wherein the capacity available at a node is reduced by the capacity of each flow assigned to the node.

27. (previously presented) The system according to claim 13 wherein the capacity for a generated flow is randomly selected to be a value less than or equal to the lower of the maximum capacity of the source node and the terminal node.

28. (previously presented) The system according to claim 13 wherein the capacity available at a node is reduced by the capacity of each flow assigned to the node.